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09/786,140	02/28/2001	Eric Matthys	P368B	6642

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Eric F. Matthys
1263 San Antonio Creek Road
Santa Barbara, CA 93111

EXAMINER	
PATEL, NIHIR B	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 9

Application Number: 09/786,140
Filing Date: February 28, 2001
Appellant(s): MATTHYS ET AL.

Kazimir Gasljevic
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 23rd, 2004

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-7, 9, 10, 14, 17, 18, and 23-26 are to be considered separately and claims 11, 12, 13, 15, 16, 19, 20, and 21 stand or fall together. However, applicant's brief does not include reasons for the grouping of the claims is support thereof. See 37 CFR 1.192©(7).

(8) Prior Art of Record

6,112,806	Kawaguchi et al.	09-2000
4,702,312	Brown	10-1987

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Original claims 1 through 7, 9, 10, 14, 17, 18 and 23 through 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawaguchi et al. US Patent No. 6,112,806. This rejection is set forth in prior Office Action, Paper No. 3. Claims 11 through 13, 15, 16, and 19 through 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al. Us Patent No. 6,112,806 in view of Brown US Patent No. 4,702,312. The rejection is set forth in prior Office Action, Paper No. 3.

(10) Response to Argument

Before addressing the applicant's arguments, the examiner would like to make it clear that **Journal: Reviews in Chemical Engineering, 1998, V14, N4-5, Pages 253-320** are not used in the art rejection but rather as extrinsic evidence to define the physical properties of surfactant solutions.

The applicant argues that Kawaguchi is teaching a method of heat transfer recovery for the same type of drag-reducing solution by thermal degradation. Kawaguchi's method relies on breaking micelles by the exposure to extreme temperatures. Kawaguchi does not mention micellar degradation by shear stress. Applicant contends Kawaguchi does not mention nor imply breaking micelles by those irregularities.

The examiner disagrees with the applicant's arguments. Kawaguchi's method relies on both breaking micelles by the exposure to extreme temperatures and shear stress. Referring to column 3 lines 64 through 67 and column 4 lines 1 through 50 Kawaguchi clearly states "The turbulent DR fluid flows into the heat exchanger. At this time, the heat transfer surface 6 of the heat transfer plate 2 is heated to a temperature higher than point "A" by the fluid in the fluid passage 4. As a result only the DR fluid in the vicinity of the heat transfer surface 6 losses its DR effect, causing an increase in drag and raising the heat transfer coefficient of the fluid near the heat transfer surface (breaking micelles by the exposure to extreme temperatures) Since the heat transfer plate 2 is formed with irregularities, the velocity of the DR fluid is accelerated near protruding portions of the heat transfer surface 6 such as at point a in Fig 1 as indicated by the arrows. Since the thermal boundary layer becomes thinner in these regions, good transfer of heat is obtained. Moreover, loss of the large scale structures in the solvent (micellar degradation by shear stress; breaking micelles) causes active motion. This turbulent eddy current motion acts to diminish the pressure gradient near the separation point. Therefore, the flow separation-point shifts downstream, and the distance between b and c increases to produce a further rise in the amount of heat exchange. As is clear from the foregoing, the heat transfer efficiency of the heat exchanger can be enhanced by providing the heat transfer surface 6 with irregularities of an appropriate shape" (parenthetical comments added).

Further, I would like to turn the Board's attention towards the **Journal: Reviews in Chemical Engineering, 1998, V14, N4-5** where it is also stated that "surfactants have a critical temperature and critical shear stress at which drag reduction is lost and the heat transfer coefficients return to those of water, they suggested that heat exchangers should be designed to

take advantage of this characteristic as a solution to the problem of the low heat transfer coefficients of drag reducing surfactant solutions." (Refer to pages 278 third paragraph from the top).

The applicant also argues that Kawaguchi's heat transfer plate irregularities will not degrade the fluid unless they are designed specifically to impose the exactly predetermined uniform shear stress which is needed to degrade a particular drag reducing solution. The examiner disagrees with the applicant's arguments. The Kawaguchi's heat transfer plate irregularities will degrade the fluid as stated above. In reference to the uniform shear stress, the examiner has relied on the Brown reference (US Patent No. 4,702,312) to modify Kawaguchi's invention by replacing the heat transfer plate irregularities with the screen in Brown's reference in order to improve the heat transfer. Similarly, Applicant's uses a screen (see figure 2 of the application) to achieve the same effect.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the recovery characteristic of a degraded fluid can be made temperature independent) are not recited in the rejected claim(s) 6, 7, and 8. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The applicant states claims 6, 7, and 8 are based on the idea that the recovery characteristic of a degraded fluid are completely temperature independent. In reference to the specifications page 17 line 8 to page 18 line 11 the applicant states that the recovery characteristic of a degraded fluid can be almost be made temperature independent and claim 6

states "substantially temperature independent surfactant additive". No where in the specifications or claims does the applicant state that the recovery characteristic of a degraded fluid can be made temperature independent.

Kawaguchi clearly states that "fluid heated to a high temperature is present only in a limited region near the heat transfer plate and is therefore small in quantity" (see column 4 lines 25-30) which makes the degrading fluid used in Kawaguchi's invention substantially temperature independent surfactant additive.

Upon further review of the applicant's specification, the examiner has not found any criticality of the type of surfactants used in the invention whether the surfactants are cationic, nonionic or a mixture of both as stated in claim 8. Therefore the type of surfactant used in the invention is simply a matter of design choice as stated by the applicant in the specification (Refer to page 6 lines 9 through 12 of the applicant's specifications).

In response to applicant's arguments to claims 11, 12, 13, 15, 19, and 20-22 against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

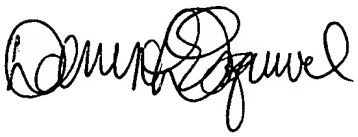
USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Kawaguchi does not disclose a degrading device that imposes a uniform shear stress. Brown on the other hand, does disclose a degrading device that imposes a uniform shear stress, which provides better heat transfer as stated in Paper No. 3.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Nihir Patel
June 14, 2004

Conferees
Henry Bennett
Denise Pothier



Daniel L Dawes
Myers Dawes & Andras
19900 MacArthur Boulevard Suite 1150
Irvine, CA 92612